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# Forgiveness and Failure of the Heart

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# Forgiveness and Failure of the Heart

by

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A Doctoral Project submitted in partial satisfaction of
the requirements for the degree of
Doctor of Psychology

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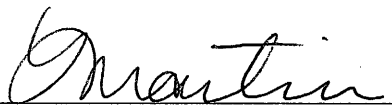

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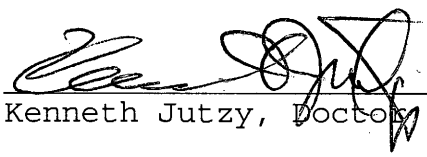

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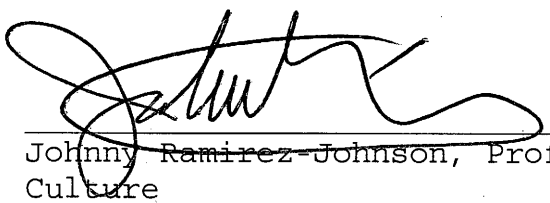

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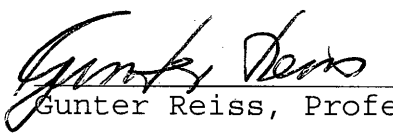

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## ABBREVIATIONS

| | |
|---|---|
| FOO | Forgiveness of Others |
| FOS | Forgiveness of Self |
| BDHI | Buss-Durkee Hostility Inventory |

ABSTRACT OF DOCTORAL PROJECT

Forgiveness and Failure of the Heart

by

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Loma Linda University, June 2004
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The extent and severity of cardiovascular disease can be measured by an angiogram. This procedure measures the degree of occlusion in major arteries of the heart. This physical measurement was correlated with patient's tendency to be forgiving of themselves and others. This measurement reflects forgiveness as a trait-like characteristic. Patients at Loma Linda University Medical Center who were undergoing angiography were given the BDHI (Buss-Durkee Hostility Inventory), the FOS and FOO (Forgiveness of Self and Forgiveness of Others) scales to complete during their waiting room period. No significant correlations were found between the scales used in this study and angiogram outcomes. Suggestions for future research are given and possible reasons for the failure to find correlations are also discussed.

## Statement of the Problem

*Introduction*

Much research has been done to explore the specific ways or mechanisms through which the intimate connections of the mind and the body take place. For example, psychoneuroimmunology (PNI) is the study of the interactions between the nervous and immune system and the relationship between behavior and health. Lovejoy and Sisson (1989) defined it as the study of the interactions among the mind, immune system, and the neurological system that influence vulnerability to disease or its development. The theoretical underpinnings of psychoneuroimmunology or mind/body connections are the same ideas that underlie this study. This study's goal was to explore the power of forgiveness (or lack thereof) on patients who were undergoing an assessment to determine if there was a relationship between an individual's tendencies toward forgiveness or grudge holding behavior and the health of the cardiac system.

*Definition of Terms*

*Forgiveness.* There are many definitions of forgiveness that have been proposed by recent research (Thoresen, Harris, & Luskin, 1998) and yet, no consensual definition of forgiveness exists (Worthington, 1998). To define a term, it is helpful to determine what that term is not. Lately, it has appeared that most theorists agree with Enright and Coyle (1998) who state that forgiveness should be considered different from 'pardoning' (which is a legal term), 'condoning' (which implies an offense was justified), 'excusing' (which implies that the offender had an adequate reason for offending), 'forgetting' (which implies that the memory of the offense is no longer present), and 'denying' (which implies an unwillingness to acknowledge the injuries one has suffered). Most researchers would also seem to agree that forgiveness is different from reconciliation (which implies the restoration of a relationship). Just because one forgives, doesn't mean the relationship between the victim and offender needs to continue as it had before the offense occurred.

To have researchers agree on what forgiveness is not does not mean that researchers have decided upon what

forgiveness is and so the problem of definition remains. Though there are similarities and overlap in the various definitions, there are also substantial differences. For example, some researchers view forgiveness as a stage-like process or unfolding of a sequence of events over time while other researchers choose to remain skeptical about whether forgiveness can be conceptualized this way. Similarly, some researchers have emphasized that effort and will are intrinsic elements of a satisfactory definition and other researchers remain skeptical about this (McCullough, et al. 2000).

Regarding the definition of forgiveness, researchers seem to be at odds in certain areas, but there seems to be a core feature to all these definitions, and that core feature is: When people forgive, their responses toward the offending party become more positive and less negative. Even though the offender once elicited negative responses from the victim, the victim's responses become more charitable over time, which may imply reconciliation. Therefore, McCullough, et al. (2000) have chosen to define forgiveness as "*intraindividual, prosocial change toward a perceived transgressor that is situated within a specific interpersonal context*" (p.9). Forgiveness has a dual

character in that it is inter- as well as intrapersonal. Not only is forgiveness a psychological construct, it is also a psychosocial construct that occurs between individuals.

*Failure of the heart.* According to Teyber's Cyclopedic Medical Dictionary (Thomas, 1989) the word "coronary" means encircling. The vessels that supply the heart encircle it. Loosely used, it refers to the heart and its surrounding vessels. Coronary artery disease (CAD) results because of hardening of the arteries otherwise known as arteriosclerosis in the coronary region. Atherosclerosis occurs when a plaque forms on the inner walls of arteries. This plaque can be caused by such reversible factors as high fat diet, sedentary lifestyle, smoking, and/or feelings of chronic stress (American Heart Association, 2004). As growth of the plaque progresses, the walls of the arteries harden and become less elastic and open to blood flow. As this plaque occludes an artery, blood flow through the artery is prevented. The occluded artery that supplies a particular aspect of the heart can cause that particular aspect of the heart muscle to necrose and become nonfunctional. When an individual's heart muscle lacks sufficient blood supply, chest pain or

"angina" is experienced. If heart muscle is without blood for a substantial period of time, the heart muscle dies and this is called a myocardial infarction (MI).

Coronary heart disease is a consequence of atherosclerosis of the coronary arteries and as a result, the oxygen demands of the heart exceed the blood flow available. Coronary heart disease caused 502,189 deaths in 2001 and is the single leading cause of death in America today (American Heart Association, 2004). An estimated 1,200,000 Americans had a new or recurrent coronary attack in 2001 and coronary heart disease claims more lives than the next five leading causes of death combined: Cancer, chronic lower respiratory disease, accidents, diabetes mellitus, influenza and pneumonia (American Heart Association, 2004). The main consequences of coronary heart disease are angina pectoris (chest pain related to insufficient blood supply to the cardiac muscle), myocardial infarction (cardiac tissue damage related to insufficient blood supply to the cardiac muscle), and sudden death.

Angiography is a way of assessing the quality and extent of cardiovascular disease. Simply put, angiography is a process during which a patient's major vessels are

catheterized and then viewed to assess their level of occlusion. There are different methods of measuring occlusion level. The simpler the method, the less accurate the assessment of the occlusion level. Current methods run from measuring the percentage of the diameter of the vessel that is occluded to assessing not only the percentage of the diameter but also noting the severity, segment, and particular vessel since the major vessels provide nutrients for various parts of the body. (Brown, et al, 1977; Siegman, et al, 1987; Helmer, et al, 1991; & Williams, et al, 1980).

*Background of the Problem*

Presently, social scientists are asking many questions about the value of forgiveness and the mechanisms that underlie its process. For example, what are the psychological factors that are involved in forgiveness? How does our ability to forgive develop as we mature? How important is the individual's personality and how important is the individual context? Social scientists have recently had an increased interest in forgiveness and the research that has recently been performed can lead to a deeper understanding of its process and development as well as its

positive impact for health and relationships. This research will be explored in Chapter Two.

For most of psychology's short history, the concept of forgiveness has received minimal attention. This may be due to forgiveness' traditional links to religious beliefs and to the social sciences' general distaste for religious issues (Gorsuch, 1988). It may also be because of the difficulties that are involved in gathering reliable data regarding forgiveness, particularly during the time when psychology was insisting that observable behaviors were the only item of value worth measuring.

During the last 15 years, forgiveness research has begun to grow larger. McCullough, et al. (2000) divide the history of forgiveness research into two periods: those that occurred between 1932 and 1980 and those that occurred between 1980 and the present. The first period consisted of mostly theoretical papers and empirical work that attempted to illuminate the concept of forgiveness. The second period shows a greater exploration of the concept of forgiveness as a social and developmental principle and it's positive effects on mental and physical health.

For example, researchers have empirically shown how the capacity to forgive (and the tendency to seek

forgiveness) develops across the life span (Enright, Santo, & Al-Mabuk, 1989; Girard & Mullet, 1997, & Spidell & Liberman, 1981). Clinicians then began writing papers and books on forgiveness and its positive effects on mental health (DiBlasio & Proctor, 1993; Fitzgibbons, 1986; Hope, 1987; Jampolsky, 1980; Linn & Linn, 1978; McCullough & Worthington, 1994; & Smedes, 1984).

During the 80's and 90's, some researchers began to explore the social principles underlying forgiveness. It was found that an individual's disposition to forgive a perceived offender could be explained by different social principles, such as the offender's motives and responsibility (Darby & Schlenker, 1982) and the severity of the offense (Boon & Sulsky, 1997).

One of the largest events to fuel the scientific study of forgiveness may have been the request made by the John Templeton Foundation in 1998. This request urged researchers to begin work on proposals that focused on the concept of forgiveness, and ultimately led to nearly 30 research laboratories being granted funding to conduct 3-year research programs on forgiveness. The outcomes to these studies will be made more explicit in the literature

review section of this study. These studies contribute to our base of scientific knowledge of forgiveness.

In order for psychology to build a solid, coherent base of scientific knowledge regarding forgiveness, certain issues need to be addressed with scientific rigor. There are three sets of issues that need to be addressed. The first pertains to concepts and methodology, the second is largely substantive and the third is related to the practical application of forgiveness in clinical settings (McCullough, et al., 2000).

The second set of issues has to do with integrating our knowledge of forgiveness into what we know about neurobiological, developmental, social, and personality processes. McCullough, et al. (2000) say it is unclear how to go about this or even to begin systematically exploring the neurobiological, developmental, social, and personality substrates of forgiveness.

The third set of issues is related to practical application of forgiveness in clinical settings. Studies have shown that there are improvements on measures of forgiveness and mental health (such as reduced anxiety, anger and depression) as the result of engaging in a forgiveness intervention (Al-Mabuk, Enright, & Cardis,

1995; Freedman & Enright, 1996; McCullough & Worthington, 1995; Coyle & Enright, 1997; Friedman & Enright, 1996; Luskin & Thoresen, 1997; Freedman & Enright, 1996; & Rye & Pargament, 2002). These interventions had the following in common: helping participants to process their feelings related to what wrong was done to them, providing education about forgiveness, and teaching various strategies that would increase forgiveness.

These three sets of issues give a broad outline to be addressed in our knowledge of the field of forgiveness.

*Purpose and Importance of the Study*

The purpose of this study was to explore the relationship between grudge holding, or its opposite concept, forgiveness, and an individual's physical health. There are many studies that have looked at hostility as a probable cause of heart disease (Williams, et al., 1980, Siegman, et al., 1987, Barefoot, et al., 1994, Dembroski, et al., 1985, Smith, 1992, & Dimsdale, 1981). One of the latest contributors to this body of knowledge was a study of young adults who exhibited hostile characteristics (Iribarren, et al. 2000). The results of this study suggested that high hostility levels may predispose young adults to arteriosclerosis (the underlying mechanism of

CAD). It seems that hostility is an attitude or behavior that can begin contributing to a disease process at a young age. Knowing that characteristics, which begin early, can contribute to a quicker death increases the sense of urgency in exploring how different specific psychological characteristics may contribute to this disease process. The results of Iribarren's study emphasized prevention of emotional mismanagement or negative mental states for the improvement of physical health.

Although there is currently no evidence available that forgiveness is associated with positive health outcomes, there are studies documenting the fact that blaming others and chronic hostility are associated with negative health outcomes. For example, Affleck, Tennen, Croog, and Levine (1987) showed that cardiac patients who blamed their first MIs on other people were more likely to have subsequent MIs, even when several other psychological and biological factors were controlled. One meta-analysis study showed that overall, hostility was an independent risk factor for coronary heart disease (Miller, Smith, Turner, Guijarro, & Hallet, 1996). In another study, it was demonstrated that increasing positive emotional states as compared with negative emotions, produced improved immune functioning,

reduced heart rate, reduced blood pressure, and increased regular breath rates (McCraty, Atkinson, Tiller, Rein, & Watkins, 1995).

Research suggests that forgiveness is healthy to the extent that it decreases chronic hostility and blaming which in turn improves immunological and cardiovascular functioning. Studies have shown relationships between anger, hopelessness, hostility, and health outcomes, but their relationships with forgiveness had remained largely unexamined until Kaplan (1992) speculated about the health protective effects of Type B characteristics. The Type B construct includes uniqueness/self-esteem/autonomy, forgiveness, sociability, and "causal" wisdom attributions. It was contrasted with the Type A construct which was originally defined by Friedman and Rosenman (1974) as an action complex that is observable in any person who is aggressively preoccupied with the constant struggle to achieve more and more in less and less time. Kaplan's personal observations were based on the outcomes of the Meyer Friedman's Recurrent Coronary Prevention Project (Friedman, et al., 1986) that formed the basis for suggesting some propositions to enlarge the definition of healthy-striving patterns, which is suggested in Type B.

To research forgiveness it will be important to examine the mechanisms by which forgiveness may reduce these negative or pathogenic elements.

Scheidt (1996) explored psychosocial factors in coronary heart disease and offered 13 possible physiological and psychosocial mechanisms of coronary heart disease but of these, he rated chronic sympathetic nervous system (SNS) hyperarousal influencing endocrine production (e.g., norepinephrine and cortisol) as the mechanism that had the most empirical support. If chronic SNS arousal is reduced, the negative effects on the cardiovascular system decrease. A reduction of negative effects includes lowered blood pressure, endogenous production of low-density lipoproteins (LDLs), a decrease in heart rate and variability, and a decrease in atherosclerosis. Another promising explanation concerns the notion of allostasis, which is defined as the ability of several physiological systems to achieve and maintain stability when attempting to adapt to stress (McEwen & Stellar, 1993). In this case, the autonomic nervous system (ANS), the hypothalamic-pituitary-adrenal (HPA) axis, and cardiovascular, metabolic and immune system all make the necessary changes to adapt and stabilize when there are perceived internal and

external demands. Stress requires these physiological systems to adapt and these changes involve different physiological patterns. "Allostatic load" is the term used for the result of this chronic over or under activity of the allostatic systems (McEwen, 1998). A high allostatic load can result in extended arousal with little or no recovery or no arousal or adaptation at all.

There are many possible psychosocial mechanisms through which SNS arousal may be reduced through forgiveness. Thoresen, Harris, and Luskin (2000) listed four of these: 1) Forgiveness might foster greater perceived security and/or greater positive thoughts about the self and optimism which might increase that individual's resistance to taking offense. In decreasing the offense taken, fears, anxiety, anger, hostility, depression and/or hopelessness, physical disease is also decreased. 2) Forgiveness may foster stronger perceived self-efficacy to take the steps needed to reduce a physical problem that, in turn, can increase positive outcomes (Bandura, 1997). 3) Forgiveness might cause individuals to feel that they have higher levels of social support. This includes the experience of a greater sense of community, service to others or a feeling of belonging or

connectedness, all of which may promote physical health (House, Landis, & Umberson, 1988; Oman, Thoresen & McMahon, 1999). 4) Forgiveness may encourage a greater sense of consciousness that moves beyond the ego and more inner experiences of communion with God or Higher Power especially among more spiritually or religiously oriented individuals (Richards & Bergin, 1997; Walsh & Vaughn, 1993).

## Review of the Literature

*Introduction*

Exploring possible relationships between forgiveness and physical health is at the cutting edge of forgiveness research. Some data suggest that clinical endeavors to increase forgiveness improve some mental health measures, such as depression and anger (Thoresen, Harris, & Luskin, 1998; Worthington, Sandage, & Barry, 1999), no controlled studies have reported improved physical health in people with diseases through use of forgiveness (Thoresen, et al., 2000). Literature exists that links physical health outcomes with factors that are conceptually related to forgiveness but it is scarce (Berry & Worthington, 2001; Seybold, et al., 2001).

The factors considered were anger, blame, hostility, revenge, and confession (Booth-Kewley & Friedman, 1987; Dembroski, et al., 1985; Smith, 1992; MacDougall, et al., 1985; Barefoot, et al., 1994; Siegman, et al., 1987; & William, et al., 1980). The research presented and the relationship between the concepts of forgiveness and related factors can lead one to consider the possibility that a forgiveness and physical health relationship may exist. Despite the lack of controlled studies linking

forgiveness with physical health outcomes, health professionals have recommended forgiveness to their patients because they believe that forgiveness improves health (Caudill, 1995; Weil, 1997). The studies cited below begin with laboratory and clinical-based studies pertaining specifically to forgiveness and then move toward noting the links between stressful mental states and physical health. A wide range of methods was used in the laboratory experiments ranging from game-playing strategies to deception.

*Earlier Laboratory Investigations of Forgiveness*

Axelrod (1980a) utilized the Prisoner's Dilemma Game (PDG) which is a tool used to simulate conflict situations in the laboratory. Submitted programs varied to the extent they incorporated strategies that were "nice" (i.e., never the first to defect) and "forgiving" (i.e., cooperating after receiving a defection from the other player).

The results of this study showed that the top eight ranking categories were "nice" but the winning strategy overall was "tit for tat" which was only moderately forgiving. Among the nice submissions, the least forgiving of those did least well. Interestingly, a "tit for two tats", which was a more forgiving version than "tit for

tat" in that it defected only after having someone else defect two times, was found to be even more successful than "tit for tat" and would have won the tournament if submitted, but it was not.

To put this into application in a more general sense in terms of interpersonal interaction, it seems that behavior that is nice and moderately forgiving appears to bring more benefit to the self than competitiveness or "turn the other cheek" strategy. The success of "tit for two tats" showed that becoming more slightly forgiving in the varied situations is the most advantageous strategy.

Even though the word "forgiving" is used in a somewhat different way in this context than it is used by the social sciences, the similarities exist in that both terms involve rethinking one's desires to respond in kind to aversive behavior from another in one's environment.

Axelrod (1980b) implemented a second round to his tournament. In this round he used the same types of subjects but 62 instead of 14 computer games were submitted. As in round one, "tit for tat" rose above the rest as the winner. Nice strategies generally fared better than competitive ones, but this time, highly forgiving strategies ("tit for two tats") left themselves more open

to attack to those strategies that were more exploitative or defecting. These findings may be generalized to show that more forgiving strategies are most beneficial for individuals with relationship partners who are less exploitative and those strategies that are slightly less forgiving are more successful with partners who are more exploitative. In regards to health, it may be that relationships that are chronically stressful and unforgiving or hostile are harder on an individual's allostatic load over time and the strain of these relationships may result in the weakening of one's cardiovascular health.

In 1991, Bendor, Kramer, and Stout looked at the PDG in a "noisy" environment. A noisy environment in this case is an environment where participants can sometimes draw the wrong conclusions because they lack perfect information regarding the behaviors of others and which is characterized by uncertainty and miscommunication. In this study players who used generous strategies fared better than those who used purely reciprocal strategies. It seemed that generous strategies helped to avoid overreaction and escalation of conflict. This suggests that the best way to maximize gains in relationships like

this is to absorb a certain level of hurt before responding in kind.

Wu and Axelrod (1995) looked to compare three different approaches to coping with the noise in the PDG. The results of this study point to the probability, that wrongdoings can be overcome by abstaining from allowing one's own inadvertently hurtful behavior from starting an exemplar for mutual hurt in a relationship. Willingness to forgive the inadvertent misbehaviors of one's relationship partner, but especially contrition for one's own hurtful behavior, may be critical ingredients for long-term success in interpersonal relationships.

Weiner, Graham, Peter, and Zmuidinas (1991) investigated public confession and forgiveness in four role-playing experiments and one laboratory manipulation. In the role-playing experiments, a political figure or a student in a class simulated a confession. That confession either followed or did not follow an accusation. The variables manipulated were all the attributions made for the act and the spontaneity of the confession. The dependent variables in some of the investigations were: the perceived personal character of the wrongdoer or transgressor, attributions of responsibility for the act,

reactions of sympathy and anger, forgiveness, and behavioral judgments. In the laboratory study, a "mixed motive" game setting was used and a confederate confessed that he had knowledge that helped him win the game. The researchers then examined what attributions the other participants made of the confederate's character and whether this caused them to compete or cooperate as a result. In the end, confession appeared to evoke more positive attributions especially when it was given without an accusation and in situations where the cause was unclear.

*Clinical Studies of Forgiveness*

Anger is commonly experienced when someone feels hurt, offended, or abused. However, anger has not received the attention to which it may be entitled in terms of forgiveness (Thoresen, et al., 1998). As previously outlined, revenge-seeking behavior is opposite of forgiving behaviors. Stuckless and Goranson (1992) developed and validated a measure of attitudes toward revenge. They surveyed three studies using a longitudinal and two cross-sectional methods to survey the three studies. In the first study, a group of 85 possible items was refined and as a result, 57 of revenge-oriented items were administered

in a questionnaire for studies 2 and 3. Other measured variables in study 1 included, a) demographic questions, b) two social desirability scales (Reynolds, 1982; Jackson, 1970), c) a Trait Anger Scale (Spielberger, Jacobs, Russell, & Crane, 1983), and d) an Empathy Scale (Davis, 1980). In study 2, the scales of social desirability, empathy and anger from study 1 were measured, plus subjects completed a 12-item scale on vengeance behavior to give concurrent validation for the Vengeance Scale. And in study 3, the Vengeance Scale was given a second time after 5 weeks to test test-retest reliability. As a result, the Vengeance Scale was shown to be a reliable and valid measure of attitudes toward vengeance and it correlated positively with trait anger and negatively with empathy. Vengeance, like forgiveness, is just beginning to receive more attention from social scientists and since it seems to be the opposite of forgiveness, it is an important variable to consider.

In terms of observing treatment for those who suffer from a lack of forgiveness, McCullough and Worthington (1995) tested the effectiveness of two brief, group-based, psychoeducational forgiveness interventions. One of the interventions used a self-enhancement rationale and the

other used an interpersonal rationale. Participants in this study were eligible if they had been subjected to interpersonal hurt that they wanted to forgive but could not. Those who had suffered extremely severe offenses (e.g., abuse or incest) were not included in this study. The chosen participants were put into one of the two intervention groups and a wait-list group. The Wade Forgiveness Scale was given to participants before intervention, after intervention, and at a 6-week follow-up. Relative to the control group, participants who had been in one of the intervention groups reported less desire for revenge, more positive feelings toward the offender, and more desire for reconciliation than the control group participants. The differences between the two groups showed that the Self-Enhancement group reported reduced feelings of revenge and greater appeasing thoughts and behaviors. Scores on some of the subscales (Freedom from Obsession, Victimization, Avoidance, Anger Toward God, and Holding a Grudge) did not seem to be affected by either intervention. However, the entire sample improved on Freedom from Obsession, Victimization, and Holding a Grudge over time. This study showed how brief psychoeducational forgiveness interventions can lead to increases in various

aspects of forgiveness and that these improvements can be maintained over time. As the population for the above mentioned study was heterogeneous Freedman and Enright (1996) and Coyle and Enright (1997) looked at more homogenous populations.

Freedman and Enright (1996) sought to assess the effectiveness of a forgiveness intervention program for improving mental health among female incest survivors. The female participants were randomly assigned to a wait-list or experimental group and were matched as closely as possible on demographic and abuse history variables. The intervention incorporated one-on-one meetings with a graduate student therapist that ended after all forgiveness topics were covered. The average length of treatment was 14.3 months. The assessment was one pretest and two posttests: the Psychological Profile of Forgiveness (Hebl & Enright, 1993), the Hope Scale (Al-Mabuk, Enright, & Cardis (1995), the Spielberger State-Trait Anxiety Inventory (Spielberger, et al., 1983), the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), the Coopersmith Self-Esteem Inventory (Coopersmith, 1981), and a Pseudo-Forgiveness Measure which consisted of five

questions to assess whether the participant had truly forgiven.

In relation to the wait-list control group, the forgiveness group showed significantly higher levels of forgiveness and hope and lower levels of anxiety and depression and treatment effects lasted one year after the intervention had ended. This study is important because it is the first study of its kind to intervene and test the efficacy of an individual therapy intervention that was designed to specifically encourage forgiveness. The evidence demonstrated that forgiveness does not lead to harmful effects but seems to improve recovery for victims of incest.

Coyle and Enright (1997) tested the efficacy of a forgiveness intervention with a sample of post-abortion men. These men had suffered these abortions as the result of their female partners' decision to have the abortion. Ten adult males were randomly assigned to a wait-list or a forgiveness intervention. The intervention was composed of 12 weekly, 90-minute individual sessions using a manual for treatment that was based on a model of forgiveness developed by Enright (1996). Assessment was measured at pretest and two posttest sessions. Assessment of this

intervention consisted of the Enright Forgiveness Inventory, the State Anger Scale (Spielberger, Jacobs, Russell, & Crane, 1983), the State Anxiety Scale, (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), a briefer version of the Perinatal Grief Scale (Potvin, Lasker, & Toedter, 1989), and a single-item, self-forgiveness measure. At the first posttest, the men in the intervention showed greater increases in forgiveness and greater decreases in anxiety, anger, and grief and the wait-list group showed similar results when given the intervention. The treatment effects were maintained after a 12-week follow-up period and individuals for whom self-forgiveness was an issue showed improvements in this area as well after treatment. This study found that this intervention, which was designed to promote forgiveness, was beneficial beyond what might have been expected with repeated testing and the normal passage of time alone. The authors recommended that this forgiveness approach be compared with more standard approaches to recovery.

Subkoviak, Enright, Wu, Gassin, Freedman, Olson, and Srinopoulos (1995) measured interpersonal forgiveness in late adolescence and middle adulthood with the purpose of validating a measure of interpersonal forgiveness and

exploring its relationship to religiosity, social desirability, anxiety, and depression. Participants were 394 college students and matched-gender parents. Approximately one half of the sample was college students and the other half consisted of their parents. Subjects were instructed to recall the most recent experience of being deeply and unfairly hurt by someone else. They then had to complete the a) 60-item Enright Forgiveness Inventory, b) Spielberger State-Trait Anxiety Scale (Spielberger, et al., 1983), c) the Beck Depression Inventory (Beck & Steer, 1987), d) a 7-item religious practice scale, e) the Crowne-Marlowe Social Desirability Scale (Crowne, & Marlowe, 1960), f) a 1-item question assessing the extent to which they had forgiven (this was used as a check for validity) and g) demographic questions. The EFI and the subscales showed good internal consistency, validity, and test-retest reliability. Forgiveness was associated with lower anxiety scores but no significant correlation with depression was found. Within relationships, the student group seemed to find forgiveness much more difficult than did the parent group. When parents and their own children experienced deep hurt, forgiveness was given to similar extents. Religiously

affiliated individuals showed a slightly higher level of forgiveness than those who were not, but there was no relationship between the religious scale and forgiveness. The results of this study showed the EFI to be highly useful in measuring forgiveness in individuals.

Emotional thoughts and personal imagery that evoke heightened physiological reactivity is difficult to suppress (van Oyen Witvliet, 1997). Another study used this notion to examine physiological effects when participants rehearsed painful memories and were unforgiving (van Oyen Witvliet, et al., 2001). On-line physiological data was collected (facial electromyogram (EMG), skin conductance, electrocardiogram, and blood pressure) while autobiographical forgiveness imagery was evoked. The results were consistent with bioinformational theory (Lang, 1979, 1995) in that there were changes in physiological measures and self-reported emotion. Participants felt significantly more negative and less in control than during the forgiving condition. They also showed greater facial EMG rates, significantly higher SNS arousal, greater heart rate and blood pressure. During the postimagery recovery period, the EMG, skin conductance, and heart rate changes persisted. This implies that the

physiological effects of the responses of forgiving and unforgiving responses to offenses can be significantly influenced by the emotional quality of the responses. Chronic unforgiving or grudge holding responses may contribute to adverse health outcomes by increasing SNS arousal and cardiovascular reactivity. Anger expression has been associated with high blood pressure (Schwenk-mezger & Hank, 1996), and the aggregation of platelets, which can increase one's vulnerability to cardiovascular disease (Wenneberg, et al., 1997).

Another study sought to explore the psychophysiological correlates of forgiveness in response to interpersonal conflict through interviews involving a friend or partner and a parent (Lawler, et al., 2003). Information was also collected on forgiving as an aspect of the participant's personality and state forgivingness. Repeated measures were taken of blood pressure, pulse, skin conductance, and facial EMG. Trait forgiveness was associated with lower blood pressure levels and state forgiveness was associated with lower blood pressure levels and heart rate. Being unable to forgive offenders was related to increased cardiovascular and SNS reactivity. An individual's lack of forgivingness was associated with a

more sustained period of cardiovascular reactivity during the retelling of the difficult experience and was carried over into the recovery period. My study sought to discover the relationship, magnitude, and direction of correlation between an individual's tendency to be forgiving (of themselves and others) and cardiovascular health. As an individual's tendency to be forgiving decreases, cardiovascular health decreases and vice versa. It is predicted that the correlation is small but significant. In terms of usefulness to public health, a greater awareness of this relationship may increase motivation to forgive oneself and others as a way to decrease stress on ones cardiovascular system.

What characteristics may lead someone to be more forgiving? A hypothetical situation was posed to a group of graduate students that required a decision whether or not to forgive a negligent friend (Lee & Chard, 2003). Self-actualization, age, and general interpersonal closeness were proposed as possible variables related to participant's tendency to forgive. This model predicted 23% of the variability in Forgiveness scores. Age and self-actualization were significantly related to

forgiveness in a positive direction and gender and general interpersonal closeness showed no significant correlation.

*Stressful Mental States and Physical Health*

In a review of research, Smith (1992) gathered evidence from prospective studies that generally suggested that hostile individuals might have been at increased risk for coronary heart disease and other illnesses. In examining the mechanisms that linked hostility and health, Smith stated that hostile individuals displayed a heightened physiological arousal in some situations, reported greater amounts of interpersonal conflict, demonstrated lesser amounts of social support, and had more unhealthy daily habits.

Suppression of emotional thoughts is seen to have negative effects upon the immune system. In a study that was designed to examine the short-term physiological effects of thought suppression and expression (Petrie, Booth, Pennebaker, 1998) subjects wrote about emotional or unemotional topics with or without thought suppression on three consecutive days. Blood was drawn and results showed a significant increase in circulating lymphocytes and CD4 (helper) T lymphocyte levels in the groups that expressed emotions in their writings. The group that suppressed

emotional thoughts showed a significant decrease in CD3 T lymphocytes, which indicates immune suppression. In this case, inappropriate expression of emotion negatively affects physical health.

Jiang, et al. (1996) prospectively investigated the mental stress-induced myocardial ischemia in patients with coronary artery disease (CAD). One hundred and twenty six volunteer patients were followed from baseline up to 5 years. At baseline the patients underwent mental stress and exercise testing and were then contacted by mail questionnaires or by telephone calls that assessed cardiac events that included death, nonfatal MIs, and revascularization procedures. Baseline mental stress-induced ischemia was associated with higher rates of subsequent cardiac events and this was found to be independent of age, baseline left ventricular ejection fraction (LVEF), and previous MI. These data suggest that stress can increase the chances of adverse cardiac events and adverse cardiac events increase the stress experienced.

In a meta-analysis of the literature on hostility and physical health, Miller, et al. (1996) looked at 15 studies used in previous meta-analytic research, as well as 30 new

studies. Overall, the results showed that hostility is an independent risk factor for coronary heart disease.

Linden, Stossel, and Maurice (1996) questioned whether the addition of psychosocial interventions actually improved the outcomes of standard rehabilitation from CAD. In this meta-analysis, anxiety, depression, biological risk factors, mortality, and recurrence of cardiac events were the studied clinical end points and were collected on a total of 2024 patients and 1156 control subjects. The psychosocially treated patients exhibited greater decreases in psychological distress, systolic blood pressure, heart rate, and cholesterol levels and those patients who did not receive the psychosocial interventions showed an increase in mortality rates and negative cardiac events. The average length of time until follow up was 5 years. Benefits were greatest within the first two years of follow up. This research emphasizes the need for psychosocial intervention in addition to standard medical treatment for CAD and urges further research in the specific, most effective types of interventions for various populations.

The present study sought to discover correlative evidence that links forgiveness with cardiovascular health. Researchers in the area of forgiveness have studied a

variety of populations but there has been little, if any exploration in the cardiac population.

## Research Methodology

### *Introduction*

This chapter discusses the methods used for this study. The chapter addresses the approach and design of this research, the participants, instrumentation, research and consent procedures, data collection and analysis, and will conclude with the methodological assumptions and limitations of this study.

### *Research Approach and Design*

The purpose of this study was to determine the degree of association between individuals' tendency to forgive (themselves as well as others), hostility, and cardiovascular health. It was anticipated that an individual's increased ability to forgive was positively correlated with cardiovascular health. Hostility appears to be associated with grudge-holding behavior. Forgiveness is supposed to reduce hostility because it releases the grudge against the perceived offender. It is unclear whether the hostility decrease or the grudge release comes first. Either way, it was hypothesized that the more forgiving an individual is, the less hostile he/she is and the less cardiovascular occlusion there will be as a result of the psychological trait. The research approach was a

correlational, cross-sectional analysis of patient's angiograms, hostility, and forgiveness inventories. The research approach was correlational because it investigated the extent to which variations in one factor correspond with variations in the other factors, and this was based on correlation coefficients (Isaac & Michael, 1997). It was cross-sectional because it observed the correlation between cardiovascular health and level of forgiveness at a particular point in time.

*Participants*

Participants were patients from the inpatient and outpatient cardiac units of Loma Linda University Medical Center (LLUMC) who were being assessed for extent of cardiovascular impairment through angiographic methods. The LLUMC inpatient unit is an intensive care unit that closely monitors more severe cases of cardiovascular impairment. The outpatient unit is for patients who have diagnostic procedures scheduled for a particular day. After the procedure is complete, the patient is usually discharged on that day unless the results determine that the individual requires another procedure to correct what is wrong with the patient.

A total of 70 patients (45 males; 25 females) participated in this study. Exclusionary criteria included catheterization for valvular disease, cardiomyopathy, other severe illnesses, or critical medical conditions (as defined by MacDougall, et al., 1985). All other patients who consented and who were able to understand and complete the forgiveness and hostility inventories were included in this study. The convenience sample was non-stratified. Adult males and females above the age of 18 were included. The actual range was 38 to 88 years of age. Any race or ethnicity was included. Males are more likely to suffer from cardiovascular disease than females (American Heart Association, 2004). This sample was representative of the general population that suffers from cardiovascular disease (with more men than women having CVD) and of that at other teaching hospitals. Private clinics' angiogram populations have lower morbidity because their sample strata is more "normal" since the private clinic's decision for angiography is more liberal and they are more likely to perform them for patients. There also seems to be greater morbidity in the managed care angiogram population since the decision for angiography is more restrictive because of availability of resources. The restrictiveness decreases

the possibility of "normal" people going through the angiogram process, but this means that the population they treat will have a higher prevalence of the disease (R. Pai, personal communication, Sept. 27, 2001).

*Instrumentation*

*Measuring forgiveness.* The FOO and FOS both have true/false response formats and were scored on a scale from 1 to 15. As currently conceptualized, higher scores on this scale reflect lower forgiveness. Therefore, for purposes of this study and intuitive appeal, the scores were reverse-coded. The less forgiving of others and oneself an individual was, the lower their score. The more forgiving individual scored higher on this measure.

In quantifying the concept of forgiveness, Mauger, et al.(1992) developed two self-report measures of dispositional forgiveness: Forgiveness of Others (FOO) and Forgiveness of Self (FOS) (See Appendix A) and did some preliminary validation of each scale. Each scale has 15 items that are subscales of a larger personality inventory, the Behavioral Assessment System (BAS) (Mauger, 1991). The FOO and the FOS measure two related but conceptually distinct constructs. Mauger, et al. (1992) found that the scales correlate with one another $\underline{r}$=.37. This indicates

that the measures are related, but not highly related. The correlation would be higher if they were measuring the same thing. Test-retest reliability for the FOO was .94 and the FOS was .67 with a two-week period of time between administrations of the test. This is important because it indicates some stability which shows that these are not just "moods" or "states" but more trait-like. Cronbach's coefficient alpha for the FOO was .71,.72 for the FOS, and .87 for the BDHI. In the sample for this study, the coefficient alpha for the FOO was .79 and for the FOS was .82. Internal consistency reliability below .7 requires a good deal of caution in interpreting the results in order to be sure that correlations are accurately assessed (Cohen, 1996). The obtained alpha reliabilities for FOO and FOS are borderline.

A review of the item content showed the FOO scale to be related to taking revenge, justifying retaliation and revenge, holding grudges, and seeing other people as apt to cause one hurt. The FOS items focus on feelings of guilt over past acts, seeing oneself as sinful, and having a variety of negative attitudes toward oneself. FOO measures an individual's tendency to be "extrapunitive" and the FOS measures an individual's tendency to be "intropunitive"

(Mauger, et al; 1992). Results of another study (Case, 1998) confirmed the FOO and FOS's adequate reliability and validity.

*Measuring hostility.* Hostility was quantified using the Buss-Durkee Hostility Inventory (Buss & Durkee, 1957) (See Appendix B). This inventory consists of 75 true or false questions that are grouped into the eight subscales of *assault, indirect hostility, irritability, negativism, resentment, suspicion, verbal hostility,* and *guilt.* Product moment correlations on the Buss-Durkee Hostility Inventory scales completed with 85 males and 88 females separately showed that none of the female's correlations and two of the male's correlations was above .50. This showed that the different scales are assessing at least somewhat independent behaviors (Buss & Durkee, 1957). In a later study that examined the BDHI, along with three other anger scales, the BDHI evidenced good test-retest reliability (over two weeks) with coefficients ranging from .64 to .82. This level of reliability indicates that the BDHI is measuring a stable, trait-like characteristic as opposed to a "mood" or "state". There was some ability to predict the experience of anger, though most of the

subscales of BDHI did not measure specific states or behavior (Biaggio, et al., 1981).

*Measuring cardiovascular health.* For this study, quantitative coronary angiography was used and is a method of estimating the size and resistance of coronary lesions using the arteriogram and computations. This method analyzes segments of affected arteries by cineangiographically viewing and digitally transmitting the information to a PDP 11/45 computer. Views of the lesions are matched to one another and a spatial representation of the vessel is mathematically constructed aiding in computing the diameter and cross-sectional area of the stricture or stenosis. Vessel dimension can be measured, in absolute, with a standard deviation of approximately 100-150 microns (Brown, et al., 1977). Occlusion of arteries is measured in four main arteries in the heart: the left main artery, the left anterior descending artery, the left circumflex artery, and the right coronary artery. Level of occlusion is determined through estimating the percentage of occlusion in each artery and then counting the number of arteries that are occluded. The value can range from 0-4 depending on whether significant occlusion is 50% or 70% blockage.

*Research and Consent Procedures*

The first contact with each participant occurred within the cardiovascular assessment setting. Each participant was pre-screened by the nurse practitioner to determine eligibility for the study, to have the study introduced and explained, and then the participant was asked if he/she would like to participate. The forgiveness and hostility inventories were inserted into a health questionnaire that already existed with the consent of the healthcare team and the patient.

If the participant agreed he/she was then given the packet of information to complete. It was also made clear that the questions for the forgiveness and hostility inventories could be completed during the time they were waiting for their procedure. Before reading the consent procedures, the participant was informed that he/she was welcome to ask any questions he/she may have had regarding the study. These questions were directed to the researcher present. Participants were also given the phone number of the primary researcher if they were interested in knowing the results of the study or had any additional questions that the nurse practitioner or researcher was unable to answer (see Appendix C).

*Data Collection*

After the participant completed the entire assessment packet, the researcher replaced the participant's name with a numerical code, separated the forgiveness and hostility questionnaires from the rest of the packet, and stored the questionnaires in a locked cabinet. The researcher and nurse practitioner were the only individuals with access to this locked cabinet.

Two different cardiology residents measured and quantified each subject's degree of stenosis or occlusion. The American Heart Association's reporting system was followed and the values gathered were expressed in terms of percentage occlusion. Values ranged from 0-100%. Participants' angiography data were copied for the researcher and matched with the individual's forgiveness and hostility inventories. Outcome data were also stored in the locked cabinet.

The paper copies of the forgiveness and hostility inventories were shredded after the appropriate data had been entered into the computer for analysis, and data for this study will be kept on file, on a computer disk for seven years after the publication date. After seven years, the disk will be destroyed.

*Data Analysis*

The purpose of this study's inquiry was descriptive in nature, in that it gives aggregate analyses of particular traits (forgiveness and hostility) within this specific sample. Quantitative data were used to determine magnitude and direction of correlation between forgiveness and angiogram scores that reflected cardiovascular health. Scores for the FOO and FOS ranged from 0 to 15 points. The FOO and FOS were correlated with the angiogram data separately from one another. Scores for the BDHI fell between 0-75. The BDHI was correlated with the forgiveness inventories as well as the angiogram data. The distributions of the correlations were represented graphically using a scattergrams. A small but significant correlation was expected.

*Methodological Assumptions*

It was assumed that the FOO, FOS, and BDHI scales and quantification of coronary angiography were relatively accurate and adequate measures of their respective constructs. It was also assumed that an individual's psychological traits would manifest themselves physiologically.

*Limitations*

Two published articles examined the FOO and FOS and the researchers who developed the scales wrote one of the two articles. It would have been preferable if the scales were more thoroughly tested and extensively validated, with a variety of populations and in a range of circumstances. However, there were no forgiveness scales available that purported to measure an individual's tendency to forgive themselves as well as others and both studies found both scales to have adequate reliability and validity.

It is also possible that a higher score on the FOO may be the result of "false forgiveness" (FF) as hypothesized by Case in 1998. FF occurs when an individual appears to have forgiven an offender but has not truly done so. FF may prevent an accurate reflection of a subject's forgiveness of others making the scores higher than they truly are.

While percentage vascular occlusion presents a broad picture of cardiovascular health, it is also somewhat superficial. There are many different methods for measuring various aspects of cardiovascular health. However, it was chosen because occlusion level represents accumulation of plaque over time. It can accumulate over

years and can be the physical result of a combination of factors such as an individual's habits (psychological and physical) and genetic predispositions.

Another limitation may lie in the design of the study. This was a cross-sectional study and not a longitudinal study. It is possible that the patients (who averaged 60.3 years of age) became more forgiving over time and their arteriosclerosis was the result of the way they lived during their earlier years. In fact, many patients stated that their scores would have been less forgiving if they had been tested 10-15 years earlier. Unfortunately, the design of the study was the result of time limitations and under ideal conditions a longitudinal design would have been chosen.

## Results

*Correlation Analysis*

Correlations were obtained between the three scales (FOO, FOS, and BDHI) and angiogram values. No significant correlation was discovered between angiogram scores and questionnaires. (See Table 1). At greater than 50% occlusion, the FOO, $r=-.05$, $p>.05$; FOS, $r=-.04$, $p>.05$; and BDHI, $r=.05$, $p>.05$, were not significantly correlated with occlusion levels. And at greater than 70% occlusion, FOO, $r=-.08$, $p>.05$; FOS, $r=-.02$, $p>.05$; and BDHI, $r=.05$, $p>.05$, were not significantly correlated with occlusion levels.

Table 1

*Correlations between Lack of Forgiveness, Hostility, and Significant Occlusion Levels Averaged Across Four Arteries*

| | Rate of Significant Occlusion | |
|---|---|---|
| | >50% | >70% |
| FOO | | |
| r | -.05 | -.08 |
| p | .67 | .50 |
| FOS | | |
| r | -.04 | -.02 |
| p | .74 | .85 |
| BDHI | | |
| r | .05 | .05 |
| p | .69 | .68 |

The FOO and FOS scales were found to be significantly correlated with one another, $r=.28$, $p<.05$. The BDHI and FOO were significantly correlated, $r=-.57$, $p<.001$ as were the BDHI and the FOS $r=-.63$, $p<.001$.

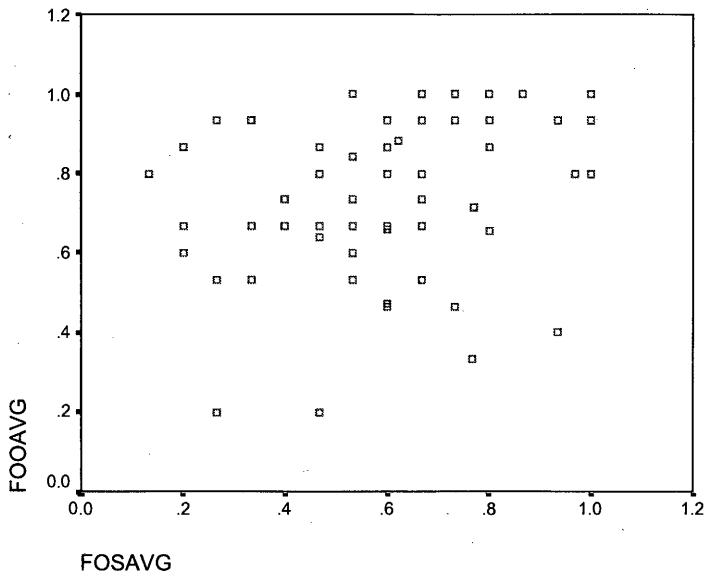


*Figure 1.* Correlation between Forgiveness of Others and Forgiveness of Self.

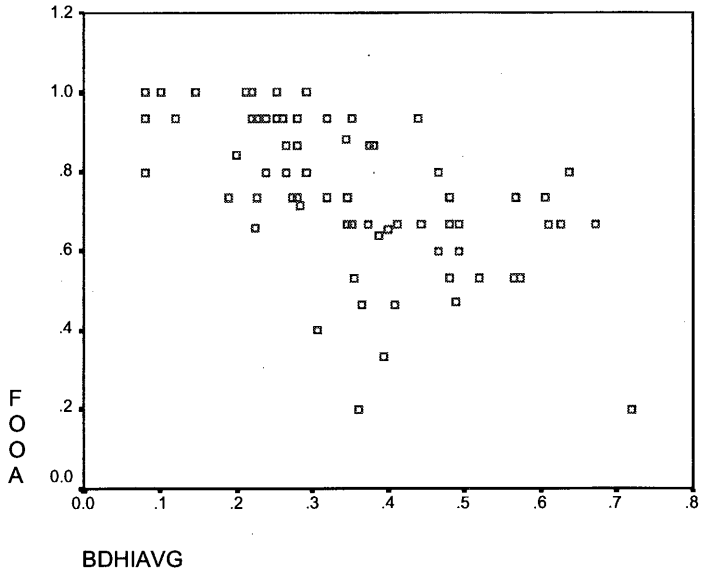


*Figure 2.* Correlation between Forgiveness of Others and Buss-Durkee Hostility Inventory.

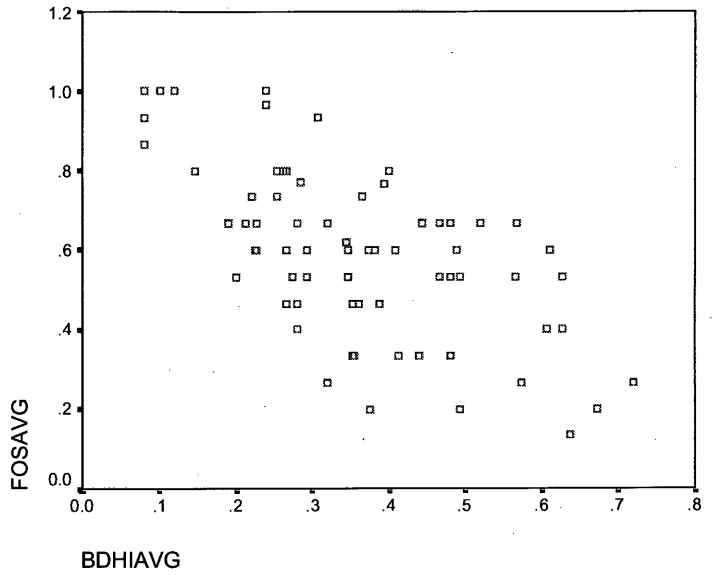


*Figure 3.* Correlation between Forgiveness of Self and Buss-Durkee Hostility Inventory.

## Discussion

No significant correlation was found between the questionnaires and angiogram results. Several reasons are possible. After many patients turned in their questionnaires, they commented that they were much less forgiving 10 to 15 years earlier and that their increased age had softened their feelings of hostility and revenge-seeking behavior. It is possible that the effects of a lifetime of hostility and unforgiveness had accumulated in the vessels by the time they had come in for diagnosis and treatment. There are three types of arterial lesions (i.e., I, II, III) and each type may stabilize and proceed to the next stage. Type I can be seen as early as infancy. Type II may be seen in childhood and Type III or "advanced" lesions are generally seen after middle adulthood (American Heart Association, 2004).

It is also possible that the patients did not answer the questionnaires honestly because of how they might be perceived by the researcher, nurse practitioner, themselves, or because of a lack of self-awareness. A few participants provided statements on their questionnaires regarding how they were supposed to answer questions based on their religious beliefs, not necessarily honest

feelings. It may also be the result of "false forgiveness" which is a barrier to forgiveness in which an individual appears to have forgiven another offending individual, but in reality has not. A scale to assess social desirability of responses was not used because of the burden that the questionnaires used already posed to the patients and because it did not occur to the research team. As it was, patients took approximately 45 minutes to complete the questionnaires and many were uninterested in spending more time answering more questions.

One question on the FOO scales was, "I am always patient". Many people answered this "true". The "always" or "never" answers seem rarely to be so in reality.

In the future, longitudinal research is recommended. This way, it will be possible to determine if an individual's earlier characteristics may lead to later health problems.

It is difficult to know what to do about decreasing the incidence of "false forgiveness". It may be helpful to develop a questionnaire with validity scales that determine if someone is forgiving falsely.

Overall, it seems that coronary artery disease does not correlate with the forgiveness and hostility scales

used in this study. However, there are many ways to improve this study that would allow for results that may find connections between an individual's tendency to forgive and coronary health.

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## Appendix A

### Forgiveness of Others (FOO)

Please answer true or false.

1. If another person hurts you first it is all right to get back at him or her.
2. I would secretly enjoy hearing that someone I dislike had gotten into trouble.
3. When other people insult me, I tell them off.
4. If a person hurts you on purpose you deserve to get whatever revenge you can.
5. It is hard for me to forgive those who hurt me.
6. I have grudge that I have held on to for months or years.
7. I would get frustrated if I could not think of a way to get even with someone who deserves it.
8. When someone insults or hurts me, I think for hours about things I could have said or done to get even.
9. When someone treats me unfairly, I feel like telling others all the bad things I know about him or her.
10. I often use sarcasm when people deserve it.
11. People who criticize me better be ready to take some of their own medicine.

12. I feel that other people have done more good than bad for me.
13. It is not right to take revenge on a person who tries to take advantage of you.
14. I believe that when people say they forgive me for something I did they really mean it.
15. I am able to make up pretty easily with friends who have hurt me in some way.

Forgiveness of Self (FOS)

1. I feel guilty because I don't do what I should for my loved ones.
2. I often feel that no matter what I do now I will never make up for the mistakes I have made in the past.
3. I regret things I do more often than other people seem to regret things they do.
4. A lot of times I have feelings of guilt or regret for the things I have done.
5. I often feel like I have failed to live the right kind of life.
6. I often get in trouble for not being careful to follow the rules.
7. I frequently put myself down for failing to work as hard as I should.
8. I find it hard to forgive myself for some things that I have done.
9. I frequently apologize for myself.
10. I am often angry at myself for the stupid things I do.
11. If I hear a sermon, I usually thing about things that I have done wrong.
12. I brood or think a lot about all the troubles I have.

13. I rarely feel as though I have done something wrong or sinful.
14. I don't think of myself as an evil person.
15. It is easy for me to admit that I am wrong.

Appendix B

Buss-Durkee Hostility Inventory (BDHI)

Please answer true or false.

1. Once in a while I cannot control my urge to harm others. ___

2. I can think of no good reason for ever hitting anyone. ___

3. If somebody hits me first, I let him have it. ___

4. Whoever insults me or my family is asking for a fight. ___

5. People who continually pester you are asking for a punch in the nose. ___

6. I seldom strike back, even if someone hits me first.___

7. When I really lose my temper, I am capable of slapping someone. ___

8. I get into fights about as often as the next person.___

9. If I have to resort to physical violence to defend my rights, I will.___

10. I have known people who pushed me so far that we came to blows.___

11. I sometimes spread gossip about people I don't like.___

12. I never get mad enough to throw things.___

13. When I am mad, I sometimes slam doors.___

14. I never play practical jokes.___

15. When I am angry, I sometimes sulk.____

16. I sometimes pout when I don't get my own way.___

17. Since the age of ten, I have never had a temper tantrum.___

18. I can remember being so angry that I picked up the nearest thing and broke it.___

19. I sometimes show my anger by banging on the table.___

20. I lose my temper easily but get over it quickly.___

21. I am always patient with others.___

22. I am irritated a great deal more than people are aware of.___

23. It makes my blood boil to have somebody make fun of me.___

24. If someone doesn't treat me right, I don't let it annoy me.___

25. Sometimes people bother me just by being around.___

26. I often feel like a powder keg ready to explode.___

27. I sometimes carry a chip on my shoulder.___

28. I can't help being a little rude to people I don't like.___

29. I don't let a lot of unimportant things irritate me.___

30. Lately, I have been kind of grouchy.___

31. Unless somebody asks me in a nice way, I won't do what they want.___

32. When someone makes a rule I don't like I am tempted to break it.___

33. When someone is bossy, I do the opposite of what he asks.___

34. When people are bossy, I take my time just to show them.___

35. Occasionally when I am mad at someone I will give him the "silent treatment."___

36. I don't seem to get what's coming to me.___

37. Other people always seem to get the breaks.___

38. When I look back on what's happened to me, I can't help feeling mildly resentful.___

39. Almost every week I see someone I dislike.___

40. Although I don't show it, I am sometimes eaten up with jealousy.___

41. I don't know any people that I downright hate.___

42. If I let people see the way I feel, I'd be considered a hard person to get along with.___

43. At times I feel I get a raw deal out of life.___

44. I know that people tend to talk about me behind my back.___

45. I tend to be on my guard with people who are somewhat more friendly than I expected.___

46. There are a number of people who seem to dislike me very much.___

47. There are a number of people who seem to be jealous of me.___

48. I sometimes have the feeling that others are laughing at me.___

49. My motto is "Never trust strangers."___

50. I commonly wonder what hidden reason another person may have for doing something nice for me.___

51. I used to think that most people told the truth but now I know otherwise.___

52. I have no enemies who really wish to harm me.___

53. I seldom feel that people are trying to anger or insult me.___

54. When I disapprove of my friends' behavior, I let them know it.___

55. I often find myself disagreeing with people.___

56. I can't help getting into arguments when people disagree with me.___

57. I demand that people respect my rights.___

58. Even when my anger is aroused, I don't use "strong language."___

59. If somebody annoys me, I am apt to tell him what I think of him.___

60. When people yell at me, I yell back.___

61. When I get mad, I say nasty things.___

62. I could not put someone in his place, even if he needed it.___

63. I often make threats I don't really mean to carry out.___

64. When arguing, I tend to raise my voice.___

65. I generally cover up my poor opinion of others.___

66. I would rather concede a point than get into an argument about it.___

67. The few times I have cheated, I have suffered unbearable feelings of remorse.___

68. I sometimes have bad thoughts which make me feel ashamed of myself.___

69. People who shirk on the job must feel very guilty.___

70. It depresses me that I did not do more for my parents.___

71. I am concerned about being forgiven for my sins.___

72. I do many things that make me feel remorseful afterward.___

73. Failure gives me a feeling of remorse.___

74. When I do wrong, my conscience punishes me severely.___

75. I often feel that I have not lived the right kind of life.___

## Appendix C

## Consent Procedures

The purpose of this study you are participating in is to explore forgiveness and its effects on an individual's physical health. You will be receiving the recommended treatments and assessments from your physician, but on top of the usual protocol, you will be answering some questions about forgiveness and hostility, which will measure your tendency to be forgiving of yourself and others. These questions will be presented to you in the form of a questionnaire and we request that you answer the questions as openly and honestly as possible. If you would like to receive the results of the study after participating in the study, you may do so. An abstract of this research will be provided on request to the researcher.

We want you to know that you are free to withdraw from this study at any time with no negative consequences for you. All information you give will be completely confidential. Your identity will not be revealed. Only the project staff will have access to your file. All participants will be assigned a code number and all information will be analyzed on a group basis. (That is, we will not conduct individual analyses of your responses).

Data may be used in subsequent research by other researchers but identities will not be disclosed.

The benefits of participating in this study include increased self-awareness about your own thoughts and feelings about forgiveness. Also, you will have a chance to contribute to psychology's body of knowledge in this area. The only conceivable risk is that you may experience slight emotional discomfort as you reflect on forgiveness, or lack thereof.

If you have any questions, please do not hesitate to call Mary Bogle at (909) 796-3843 or (909) 844-6859 and she will answer any questions you may have. If you have a desire to discuss these questions with someone other than this project's staff, please call Dr. Louis Jenkins, chair for Loma Linda University's Department of Psychology (909) 558-8752.

If you agree to the terms of this study and you have had the opportunity to ask questions and understand the procedures, please sign below.

Signature_____ Date_____